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**METHOD AND SYSTEM FOR CLASSIFYING A SCENARIO****Abstract of the Disclosure**

Living cells can be used to identify or quantify bioactive conditions, including  
5 without limitation, chemicals, biological pathogens, and environmental conditions, such  
as pH, in samples based on changes in, for example, cell color, morphology and/or  
physiology. Such changes can be directly detected or detected with the aid of  
instrumentation. One embodiment of the method comprises exposing a system to a  
bioactive condition, such as a chemical agent, a biological pathogen, an environmental  
10 condition, such as pH, etc., and combinations of such conditions. The system then  
exhibits a response to the bioactive condition. The response of the system, or a portion  
thereof, to the bioactive condition is then represented, such as by digital images. The  
method then involves attempting to classify a scenario by database comparison.  
Classification can be in terms of numeric or non-numerical classifiers. Typically, the  
15 system comprises living cells. Living cells useful for practicing the method experience  
a detectable change in response to an interaction with a bioactive condition. A likely  
living cell for use with the method and apparatus of the present invention is a  
chromatophore. The present method has a number of uses, including classifying  
unknown drug candidates, classifying unknown toxins, classifying chemical warfare  
20 agents, etc. The method can be implemented using a computer program encoding the  
method. Moreover, a computer-readable medium is described on which is stored a  
computer program having instructions for executing the method. A cytosensor  
apparatus also is described.